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**Solid Waste  
Management Bureau**  
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40 cubic yards at one time

## GETTING IT TOGETHER

The first step toward a potential resource recovery facility in Montana is concentration of enough refuse in one area to make it economically feasible. This means having some kind of central collection method for a wide area.

Currently Pat Trusler, staff member of the Solid Waste Management Bureau, is working with three counties which are interested in setting up collection districts. The key to the program is for use of bulk containers.

A bulk container is a metal portable disposal area which holds 40 cubic yards of loose garbage and is 24' long, 8' wide and 6' high. Such a container can handle the garbage of 500 people each week. It is then picked up by a truck, trailer combination (which leaves an empty container) and hauled to a central disposal site.

The major advantage of this system is that other landfills in the county can be closed thus saving money and eliminating duplication of equipment and services within the area. Trusler says it is cheaper to haul outlying containers to a centralized landfill rather than burying the refuse at satellite disposal site: The primary expense in setting up the program is for equipment which costs approximately \$55,000 for a county with 15,000 people. However, Trusler estimates it can be paid for in one-and-a-half-years.

He explained that establishing such districts does not necessarily eliminate any private collection facilities. For instance, a private collector can continue to operate in a small town and unload at the bulk container site rather than a landfill. Also, districts can investigate contracting with private individuals to manage the operation of hauling the containers.

With bulk container districts established in the state, the possible next step of transferring the refuse to a large resource recovery facility will be very short.

## FUEL FROM REFUSE - TWO METHODS

One method of resource recovery utilizes the potential heat content of refuse through the conversion of solid waste to fuel. The National Resource Recovery Act provided grants to Baltimore and San Diego for construction of large-scale demonstration projects to convert refuse to fuel.

In Baltimore, a plant which is processing 1,000 tons per day of solid waste was built under a contract with Monsanto Enviro-Chem Systems, Inc. It uses a "Langard" system which employs a pyrolysis process (chemical decomposition by heat) to convert most of the organic matter in the solid waste into a low-BTU gas. This gas is then burned on site to produce steam which is sold to Baltimore Gas and Electric for use in its steam distribution system.

The Baltimore plant processes only the solid waste from residential and commercial users. The first step after the refuse is brought to the plant is to remove large bulky products such as appliances. The refuse is milled through a shredding process and then fed into a storage bin from which it is transferred into a kiln where the organic components of the refuse decompose into various gaseous products, carbon and ash. where the organic components of the refuse decompose into various gaseous products, carbon and ash.

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The hot residue is then separated into carbon char, the magnetic materials and glassy aggregate. The char is mixed with sewage sludge to make fertilizer. The ferrous metals is sold as scrap and the glassy aggregate, composed primarily of nonferrous metals and glass, can be mixed with asphalt and used for street paving.

The gas has a heat content of 100 BTU per cubic foot and the chemical composition of the gas precludes its use as a gas turbine fuel. The production of a fuel with a low heat content necessitates its use at a point close to the source of production since it is not economical to transport it long distances.

The San Diego facility uses a pyrolysis process developed by the Garrett Research and Development Company, a subsidiary of Occidental Petroleum. The fuel produced by this process is a heavy oil-like liquid similar to No. 6 fuel oil. A gallon of Garboil, which is its trade name, weighs about one-third more than a gallon of No. 6 oil, and has 77 percent of the heat content.

The Garrett process is similar to the Langard process in that both involve pyrolysis. However, the Garrett process requires a greater degree of refuse sorting since the system requires an input that is 95 percent organic. Also the refuse must be finely shredded. In the Garrett process, most of the inorganics are removed before pyrolysis whereas in the Langard process the inorganics are removed after pyrolysis. The glass recovered from the raw refuse using the Garrett process is claimed to have a purity of better than 99.7 percent which would make it readily usable for the production of new glass containers. The recovery of magnetic materials is readily accomplished, and since most of the nonmagnetic metals and other inorganic materials are also removed during processing, it is intended that metals such as aluminum, copper and brass will also be recovered.

Pilot plants based on the Langard and Garrett processes have been built and operated. Information obtained from these pilot plants is now being used to develop design and operating criteria for these large scale demonstration plants. Other processes and methods are also being developed and constructed.

## FROM THE SOAP BOX TO THE MAIL BOX

*Editors Note: After the last issue when Terry Carmody, chief of the Solid Waste Management Bureau, climbed on his soap-box to deliver a discourse on solid waste as the ultimate alternative energy source, the editor imagined his response to "Dear Terry" letters. They are reprinted for your information.*

Dear Terry:

I've read where the Solid Waste Management Bureau is doing a Resource Recovery study. What in the world is that?

Signed: Curious

Dear Curious:

The purpose of a Resource Recovery Program is to look at Montana's present refuse collection and disposal facilities; determine what people are throwing away and what can be reclaimed or recycled. We also will be considering markets for recyclable materials such as aluminum, paper, iron, etc. and whether the state has sufficient solid waste to power a facility designed to produce power or fuel.

It takes a great deal of information to collect this kind of information, analyse it and put it into a comprehensive program for the state. Therefore, we hired a private consulting firm with a lot of experience in this field. Its final report and suggested program will be completed this fall.

In the meantime, as information becomes available, we will be sharing it with the public through local review panels, this newsletter and the press.

Dear Terry:

I'm concerned about the amount of land being used for garbage dumps even though the state does have laws which make them sanitary and less ugly. It still takes land. What are you doing to change this type of garbage disposal?

Signed: Chairman, Save Our Land Committee

Dear SOL:

An accompanying article in this issue discusses our plans to help establish Bulk Container Collection districts (Getting It Together). This is one answer to the problem of using land for refuse disposal. Other steps can be taken by individuals such as saving recyclable cans and paper and taking them to your local recycling center. Finally, of course, we are hoping to have more answers with the completion of our Resource Recovery Program. However, nothing will be accomplished until there are more concerned people like you.

Dear Terry:

I read in the Great Falls Tribune that Public Works Director Jack Holland said producing flammable gas from the city's landfill or sewage treatment plants would be uneconomical. He said the amount of money required to start such a project would be prohibitive here. Isn't this a possibility the Resource Recovery study will consider? If so, how could it be financed?

Signed: Trib reader

Dear Reader:

Yes, this is just one of the many possibilities the study will consider. And Jack Holland is correct in saying a resource recovery facility will probably be out of the question for one city or area to finance without help. Nearly all similar facilities built to date received federal and state assistance. The Resource Recovery Program, however, will also be studying the problem of financing and possible combinations of public and private funds being used for any recommended projects.

I am convinced the people and state will save money with a comprehensive coordinated program. And it will be up to the people of Montana to approve it. We may have to determine how strong our commitment is to protecting the state's environment and whether we are willing to invest in a project which will save our land resources, provide an alternative source of energy and preserve our minerals and other natural resources. What is it worth to you?

Dear Terry:

My next door neighbor has five junked cars in his yard and they are ruining the appearance of our block. Isn't this against the law? Why don't you do something about it?

Signed: Mad Neighbor

Dear Mad:

Yes, it is against the law. All junk vehicles must be screened, even if it's only one car. The screening law is basically a good neighbor policy. Perhaps your neighbor doesn't realize that every county has a free car graveyard and most counties will even pick them up at no charge. If he is wrecking them out, however, and doesn't want the hauled away, his lack of screening is a misdemeanor which should be prosecuted by the county attorney in your county. Let him know about your problem.

Sincerely,  
Terry Carmody  
Chief, Solid Waste  
Management Bureau

## CITIZENS ASSIST IN PLANNING RESOURCE RECOVERY PROGRAM

Questions and suggestions from the public are an integral part of the development of the state-wide solid waste management program. They are being supplied by a technical steering committee and local review panels currently being organized.

The technical steering committee is comprised of members representing a cross-section of private, public and industrial sectors of the state. It has held two meetings to review the progress and findings of consultants Henningson, Durham & Richardson who are studying the resource recovery potential in Montana. A third meeting to review the information concerning energy and material markets will be held in March.

Local review panels are being formed by the staff of the Solid Waste Management Bureau. These panels will review the overall study program, current waste collection and disposal methods and alternative methods available.

Bill Potts, Bureau staff member, said public officials and interested persons in each planning region will be contacted to form an original core for each panel. However, he stressed, the panels are open to everyone. He anticipates about three meetings of the panels during the next six months.

"These local review panels are extremely important," Potts said. "It will be our major effort to incorporate public opinion into the planning project. If the people don't understand and approve of the direction we are going," he said, "it will never be implemented. All interested persons should write the Solid Waste Management Bureau for further details."

Members of the technical steering committee are:

C. Y. Holland, director of Department of Public Works, Great Falls; Roy Bennett, superintendent, Sanitation Department, Billings; Alan Thelen, city manager, Helena; Charles Greene, Energy Planning Division, DNR, Helena; Carl Anderson, manager, Environmental Department of Montana Power Company, Butte; Max Bauer, owner, City Disposal Company, Missoula; Robert L. Sanks, Civil Engineering Department, MSU, Bozeman; Chet Blaylock, senator, Laurel; John Driscoll, representative, Hamilton; Howard McDowell, Inland Forest Resource Council, Missoula; Mrs. J. B. Spaulding, League of Women Voters, Helena; Dean Zinnecker, Montana Association of Counties, Helena; Dan Mizner, Montana League of Cities and Towns, Helena; Doug Stewart, Montana Recycling, Inc., Missoula; George McArthur, Director, Environmental Affairs, Anaconda Company, Helena; Don Harrington, Pepsi-Cola Bottling Company, Butte; Russell Hanstrom Atlas Brewers, Inc., Billings; Mrs. Garth Davis, Sierra Club, Clancy.

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